

Rev. A

Waterproof Signal Double Lock Connector System

1. Introduction

1.1 Purpose

This is a product validation test. The purpose of this test is to evaluate the performance of (Product Description). Testing was performed on below products to determine its compliance with the requirements of 108-143069.Rev.A2.

1.2 Scope

This report covers the electrical, mechanical, environmental, and material performance for Waterproof Signal Double Lock Connector System. Testing was performed at TE Connectivity Shanghai Electrical Test Laboratory (Building ID 554) between 2023-03-09 and 2023-04-12. The associated test number is TP-23-00481.

1.3 Conclusion

The items listed in Clause 1.5 conformed to performance requirements of criteria described in Clause 3. The testing results are only responsible for the specimens tested.

1.4 Test Specimens

Product Description

Waterproof Signal Double Lock Connector System

Test Group	Part No.	Part Rev.	Description	Qty. (pcs)	Part No.	Part Rev.	Description	Qty. (pcs)
1	2443725- 2	1	CAP HOUSING FREE HANGING 2PIN	3	2443728- 1	1	TAB TERMINAL SDL2.5 WATERPROOF	6
	2443725- 6	1	CAP HOUSING FREE HANGING 6PIN	3	2443728- 1	1	TAB TERMINAL SDL2.5 WATERPROOF	18
	2443729- 2	1	PLUG HOUSING SDL2.5 WATERPROOF 2PIN	3	2321921- 1	А	RECEPTACLE TERMINAL	6
2	2443729- 6	1	PLUG HOUSING SDL2.5 WATERPROOF 6PIN	3	2321921- 1	А	RECEPTACLE TERMINAL	18
_	2443725- 2	1	CAP HOUSING FREE HANGING 2PIN	3	2443728- 1	1	TAB TERMINAL SDL2.5 WATERPROOF	6
2	2443725- 6	1	CAP HOUSING FREE HANGING 6PIN	DescriptionQty. (pcs)Part No.Part Rev.DescriptionHOUSING FREE ANGING 2PIN32443728- 11TAB TERMINAL SDL2.5 WATERPROOFHOUSING FREE ANGING 6PIN32443728- 11TAB TERMINAL SDL2.5 WATERPROOFHOUSING SDL2.5 ERPROOF 2PIN32321921- 1ARECEPTACLE TERMINALHOUSING SDL2.5 ERPROOF 6PIN32321921- 1ARECEPTACLE TERMINALHOUSING SDL2.5 ERPROOF 6PIN32443728- 11RECEPTACLE TERMINALHOUSING FREE ANGING 2PIN32443728- 11TAB TERMINAL SDL2.5HOUSING FREE ANGING 6PIN22443728- 11TAB TERMINAL SDL2.5HOUSING FREE ANGING 6PIN42443728- 11TAB TERMINAL SDL2.5HOUSING FREE ANGING 2PIN42443728- 11TAB TERMINAL SDL2.5HOUSING FREE ANGING 2PIN42443728- 11TAB TERMINAL SDL2.5HOUSING FREE ANGING 6PIN42321921- 11TAB TERMINAL SDL2.5HOUSING FREE ANGING 6PIN42321921- 11RECEPTACLE TERMINAL HOUSING SDL2.5HOUSING SDL2.5 ERPROOF 2PIN42321921- 11RECEPTACLE TERMINAL HOUSING SDL2.5	12			
3	2443732- 2	1	REAR WIRE SEAL 2PIN	8				/
	2443725- 2	1	CAP HOUSING FREE HANGING 2PIN	4	2443728- 1	1	TAB TERMINAL SDL2.5 WATERPROOF	8
	2443725- 6	1	CAP HOUSING FREE HANGING 6PIN	4	2443728- 1	1	TAB TERMINAL SDL2.5 WATERPROOF	24
	2443729- 2	1	PLUG HOUSING SDL2.5 WATERPROOF 2PIN	4	2321921- 1	1	RECEPTACLE TERMINAL	8
	2443729- 6	1	PLUG HOUSING SDL2.5 WATERPROOF 6PIN	4	2 <u>32192</u> 1- 1	1	RECEPTACLE TERMINAL	24

Specimens received on 2023-03-01 with the following part numbers were used for test:

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Test Group	Part No.	Part Rev.	Description	Qty. (pcs)	Part No.	Part Rev.	Description	Qty. (pcs)
Test Group 3 4	2443732- 6	1	REAR WIRE SEAL 6PIN	8				/
	2208113- 2	А	BLIND PLUG 1.2 X 12.9,NANOMQS,GN	20				/
4	2443725- 2	1	CAP HOUSING FREE HANGING 2PIN	3	2443728- 1	1	TAB TERMINAL SDL2.5 WATERPROOF	6
	2443725- 6	1	CAP HOUSING FREE HANGING 6PIN	3	2443728- 1	1	TAB TERMINAL SDL2.5 WATERPROOF	18
	2443729- 2	1	PLUG HOUSING SDL2.5 WATERPROOF 2PIN	3	2321921- 1	А	RECEPTACLE TERMINAL	6
	2443729- 6	1	PLUG HOUSING SDL2.5 WATERPROOF 6PIN	3	2321921- 1	A	RECEPTACLE TERMINAL	18

1.5 Test Sequence

		Test Group				
Test Item	1	2	3	4		
	Test Sequence					
Contact Extraction Force		3				
Contact Insertion Force		2				
Examination of Product	1	1	1	1,6		
Humidity and Temperature Cycling				3		
Insulation Resistance			2,4			
Low Level Contact Resistance	3			2,5		
Mating Force	2					
Temperature Life				4		
Unmating Force	4					
Water Proof Test			3			

Note: a). Test group defined per customer requirement.

b). Numbers indicate sequence in which tests are performed.

1.6 Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature:	15 ℃ to 35 ℃
Relative Humidity:	25 %RH to 75 %RH

2. Summary of Test

Group	SN	Description	Test Item	Qty(pcs)	Test Result				Poquiromont	Conclusion
					Max	Min	Avg	Unit	Requirement	Conclusion
	1	All	Examination of	6	No physical			/	No physical	Meet
	1	samples	Product	0	(damage			damage	Spec.
		20		2	02	4.9	6.7	Ν	11.76 N Max.	Meet
	2	۲	Mating Force	3	0.2					Spec.
		6P	Mating Force	3	167	15.2	15.9	Ν	35.28 N Max.	Meet
1		UF			10.7					Spec.
I	3	2P 6P		2	5.99 4.40	1 10	1 00	N	20 N Max	Meet
			Low Level Contact	3		4.99 1	IN	20 N Max.	Spec.	
			Resistance	0	5.00	E 0.0	5 A 7	NI	20 N Mov	Meet
			3	3	5.99	5.06	5.47	IN	20 IN Max.	Spec.
	4	4 00	2D Unmoting Force	2	0.7	2.0	0 07	N	4.40 NLMin	Meet
	4	28	Unmaling Force	3	3.7	2.0	2.7	IN	1.10 N WIII.	Spec.



Crew	SN	Description			Test Result				Poquiromont	Conclusion				
Group		Description	l'est item	Qty(pcs)	Max	Min	Avg	Unit	Requirement	Conclusion				
1	4	6P	Unmating Force	3	6.2	5.5	5.7	Ν	3.54 N Min.	Meet Spec.				
		All	Examination of		No	physic	al		No physical	Meet				
	1	samples	Product	0	C	lamage		/	damage	Spec.				
		20		2	4.6	10	4.2	N		Meet				
	2	28	Contact Insertion	2	4.0	4.0	4.3	IN	7.04 IN Max.	Spec.				
2	2	6D	Force	2	10	24	11	NI	7.94 N Mov	Meet				
2		01		2	4.0	5.4	4.4	IN	7.04 IN Max.	Spec.				
		2P		2	43.6	41.8	42.5	Ν	25 N Min	Meet				
	3	21	Contact Extraction	2	-0.0	41.0	42.0		2011 1001	Spec.				
	Ŭ	6P	Force	2	45.0	39.0	42.8	N	25 N Min	Meet				
		01		-	10.0	00.0	12.0		201110	Spec.				
	1	All	Examination of	0	No	physic	al	/	No physical	Meet				
		samples	Product		C	lamage		1012	damage	Spec.				
		2P		3	7.80	3.41	4.92	1012	1000 MΩ	Meet				
								Ω 10 ¹²	$(=1^{10^{\circ}\Omega})$ Min.	Spec.				
	2	3P	Insulation	isulation 2	4.01	3.28	3.76	10'2	1000 MΩ	Meet				
			Resistance					Ω 4 0 ¹²	$(=1 10^{\circ}\Omega)$ WIII.	Spec.				
		6P		3	16.20	3.28	7.03	0	1000 IVIS2	Spee				
3		A II		11				<u> </u>	$(=1 10^{\circ}\Omega^{2})$ with.	Spec.				
	3	samnles	Water Proof Test		No water ingress			/	ingress	Spec				
	4	Samples						10 ¹²	500 MO	Meet				
		2P		3	7.37	4.25	5.94	0	$(=5^{*}10^{8}\Omega)$ Min	Spec				
		_	Insulation Resistance					10 ¹²	500 MO	Meet				
		3P		2	11.50	4.42	8.83	0	$(=5*10^8O)$ Min.	Spec.				
					44.40			. 10 ¹²	500 MΩ	Meet				
		6P		3	11.40	2.63	6.04	Ω	(=5*10 ⁸ Ω) Min.	Spec.				
		All	Examination of	<u> </u>	No physical			,	No physical	Meet				
	1	samples	Product	0	c	lamage		/	damage	Spec.				
	2	2				20		2	6.22	E 00	6 17	m0	10 Mex Mox	Meet
			26	Low Level Contact	5	0.33	5.00	0.17	11152		Spec.			
	2	60	Resistance	3	6.63	5.63	6.06	mO	10 mO Max	Meet				
		01		5	0.05	5.05	0.00	11152	10 11122 10107.	Spec.				
		All	Humidity and		No	nhysic	al		No physical	Meet				
	3	samples	Temperature	6	damade			/	damage	Spec				
4		oumpioo	Cycling		uannage				damago	0000.				
	4	All	Temperature Life	6	No	physic	al	/	No physical	Meet				
	·	samples		~ ~	C	damage			damage	Spec.				
	5 6	2P		3	6.74	6.24	6.46	mΩ	20 mΩ Max.	Meet				
		Low Level Contact		-	i				Spec.					
		6P	Resistance	3	7.95	6.04	6.70	mΩ	20 mΩ Max.	Meet				
		A 11	Examination of		N -				No physical	Spec.				
		All		0	INC	n priysic	al	/	no priysical	Ivieet				
		samples	FIDUUCI		0	iamaye			uamaye	Spec.				

3. Test Procedures and Requirements

2.1 Contact Extraction Force

Apply an axial pull-off load to crimped wire. Operation Speed: 25 mm / min. Requirement: 25 N Min. Test Method: EIA-364-29D-2019

2.2 Contact Insertion Force

Measure the force required to insert contacts into housing and remove from housing. Operation Speed: 25 mm / min. Requirement: 7.84 N Max Test Method: EIA-364-05C-2020



2.3 Examination of Product

Appearance and function examination according to the applicable inspection spec. Requirement: No physical damage. Test Method: EIA-364-18B-2007

2.4 Humidity and Temperature Cycling

Subject mated specimens to 10 cycles (1cycle=24hours) of humidity-temperature cycling. Each cycle consists of temperature between 25 $^{\circ}$ C and 65 $^{\circ}$ C and humidity between 80 %RH 100 %RH. Requirement: No physical damage. Test Method: EIA-364-31F-2019

2.5 Insulation Resistance

Measured with a test voltage of 500 V dc for 2 minute(s) between adjacent contacts. Requirement: Initial: 1000 M Ω Min; Final: 500 M Ω Min Test Method: EIA-364-21F-2020

2.7 Low Level Contact Resistance

Subject contacts assembled in a housing to20mV (max.) open circuit at 10 mA. Measure between contact and at wire 75mm from end of contact. Requirement: Initial: 10 m Ω Max.; Final: 20 m Ω Max. Test Method: EIA 364-23C-2006 (R2017)

2.8 Mating Force

Measure axial force necessary to mate specimens at operation speed: 25.4 mm/min Requirement: 5.88 N /Positions Max Test Method: ECIA EIA-364-13E-2011

2.9 Temperature Life

Subjected mated specimens to a temperature of $105^\circ\,$ C for 96 hours. Requirement: No physical damage. Test Method: EIA-364-17C-2011

2.10 Unmating Force

Measure force necessary to unmate samples at maximum rate of 25.4 mm/min. Requirements: 0.59 N/Positions Min. Test Method: EIA-364-13E-2011

2.11 Water Proof Test (IPX7)

Immerse specimens into a water tank with the depth of 1 m for 30 minutes. Requirement: No water ingress is found after test. Test Method: IEC 60529-2013

4. Validation

Requested by:

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2023-02-21

TE Connectivity Product Engineering

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2023-05-22 TE Connectivity Shanghai Electrical Components Test Lab.

Approved by:

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_____ 2023-05-22

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